

Trend Study 30-63-03

Study site name: Holt Canyon.

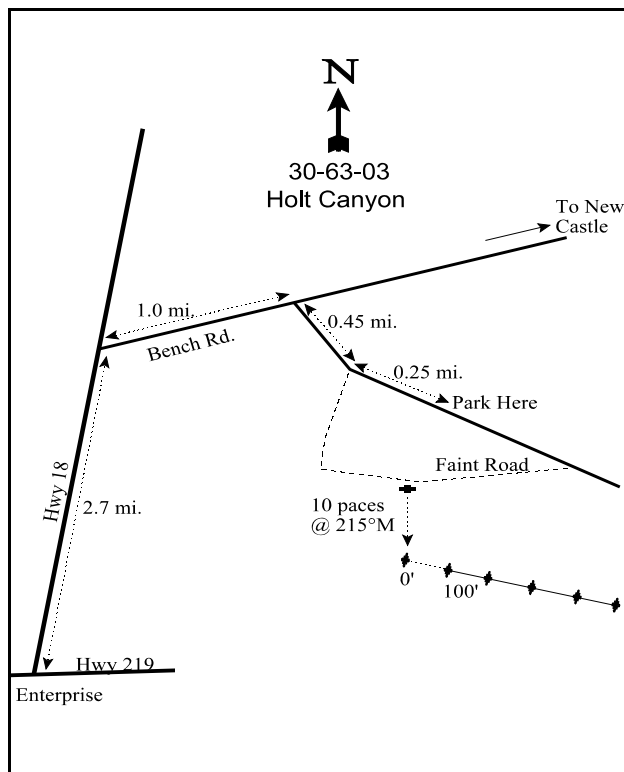
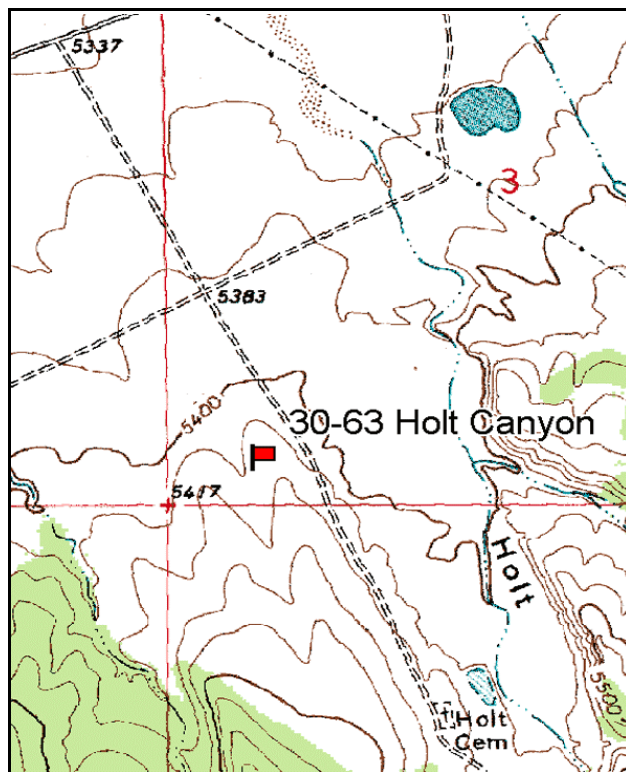
Vegetation type: Wyoming Big Sagebrush.

Compass bearing: frequency baseline 149 degrees magnetic.

Frequency belt placement: line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), line 5 (95ft).

LOCATION DESCRIPTION

From Enterprise, drive east on Highway 18 for 2.7 miles to Bench Rd. Turn left and drive approximately 1.0 mile to Holt Canyon Road, there is a sign. Drive on Holt Canyon Rd. for 0.45 miles to an intersection. Continue straight for 0.25 miles and park. Walk up the hill to the west and look for a full high witness post next to a faint road. From the witness post, the 0-foot stake is 10 paces at 215 degrees magnetic. The 0-foot stake is marked by browse tag #142. The study is marked by green steel "T" fence posts approximately 12 to 14 inches in height.



Map Name: Enterprise

Diagrammatic Sketch

Township 37S, Range 16W, Section 3

GPS: NAD 27, UTM 12S 4163561 N, 266913 E

DISCUSSION

Holt Canyon - Trend Study No. 30-63

This is a new trend study established in 2003 as a reference area for the Wyoming big sagebrush type. It is located about 7 miles south of the town of Newcastle and about 6 miles south of trend study 30-29, Southwest of Newcastle. The site is located on a Wyoming big sagebrush winter range at an elevation of about 5,400 feet at the mouth of Holt Canyon. Aspect is to the southwest and slope is 11%. This area has received little to no livestock use for many years. It does receive some use by wintering deer and pellet group data taken on the site in 2003 estimated 11 deer days use/acre (26 ddu/ha).

Soil at the site is relatively shallow with an effective rooting depth estimated at 11 inches. The soil temperature is 70.4°F at just over 11 inches. The soil surface is gravelly with larger rocks scattered on the surface and throughout the profile. Rock and pavement combine to produce nearly 30% ground cover. Parent material is basalt. Soil texture is a sandy loam and reactivity is neutral (pH of 7.2). Shrub interspaces are mostly bare of herbaceous vegetation but the soil surface is armored by pavement and the amount of exposed bare ground is low. There is little erosion occurring on the site and the erosion condition class was rated as stable.

The site supports a fairly dense stand for a Wyoming big sagebrush site. Density was estimated at 3,080 plants/acre in 2003 with a line-intercept cover estimate of nearly 19%. Most of the plants exhibited normal vigor, but 54% of the population was classified as decadent due to partial crown death. However, only 29% or 480 plants/acre of the decadent sagebrush were rated as dying (>50% crown death). All other decadent plants displayed normal vigor. Utilization was mostly light to moderate. Sagebrush were producing abundant seed heads and annual leader growth was good, averaging 1.7 inches. Young recruitment is marginal with only 100 young plants/acre estimated. This is not enough to maintain the population at current levels. The only other shrubs encountered on the site included a few cactus, Spiny polygala, and an occasional bitterbrush.

The herbaceous understory is poor with total grass cover of only 5%. The only common species are cheatgrass which accounts for 23% of the grass cover and galleta which accounts for 56% of the grass cover. Purple three-awn, Indian ricegrass, and bottlebrush squirreltail are also found on the site in small numbers. Perennial forbs are rare. Total forb cover averaged around 2% in 2003. Annual forbs, Gilia and wooly navarretia, are the only common species.

2003 APPARENT TREND ASSESSMENT

Soil conditions appear stable. There is little exposed bare ground and erosion is minimal. The sagebrush population is showing the effects of drought. Just over half of the population is decadent but only 29% of those were classified as dying. All other sagebrush displayed normal vigor. Most sagebrush look healthy and vigorous with excellent seed production and annual leader growth. Young recruitment is marginal and probably not sufficient to avoid a small decline in population density in the future. The herbaceous understory is fairly diverse for a dry Wyoming big sagebrush site, but most species are rare in their occurrence. Galleta provides over half of the grass cover estimated at only 4.5%. Perennial forbs are rare and all forbs combined produce less than 2% cover.

HERBACEOUS TRENDS --

Management unit 30 , Study no: 63

| T y p e | Species | Nested Frequency '03 | Average Cover % '03 |
|-----------------------------|---------------------------|--------------------------------|-------------------------------|
| G | Aristida purpurea | 22 | .52 |
| G | Bromus tectorum (a) | 128 | 1.05 |
| G | Hilaria jamesii | 86 | 2.54 |
| G | Oryzopsis hymenoides | 9 | .04 |
| G | Sitanion hystrix | 30 | .33 |
| G | Vulpia octoflora (a) | 4 | .00 |
| Total for Annual Grasses | | 132 | 1.06 |
| Total for Perennial Grasses | | 147 | 3.45 |
| Total for Grasses | | 279 | 4.51 |
| F | Calochortus nuttallii | 8 | .02 |
| F | Cymopterus spp. | 10 | .04 |
| F | Euphorbia spp. | 5 | .03 |
| F | Gilia spp. (a) | 66 | .68 |
| F | Leucelene ericoides | 5 | .15 |
| F | Navarretia intertexta (a) | 88 | .84 |
| F | Penstemon spp. | 1 | .03 |
| F | Phlox longifolia | 1 | .00 |
| Total for Annual Forbs | | 154 | 1.52 |
| Total for Perennial Forbs | | 30 | 0.28 |
| Total for Forbs | | 184 | 1.81 |

Values with different subscript letters are significantly different at alpha = 0.10

BROWSE TRENDS --

Management unit 30 , Study no: 63

| T y p e | Species | Strip Frequency '03 | Average Cover % '03 |
|------------------|--------------------------------------|-------------------------------|-------------------------------|
| B | Amelanchier utahensis | 0 | .38 |
| B | Artemisia tridentata wyomingensis | 81 | 22.93 |
| B | Opuntia spp. | 1 | .38 |
| B | Polygala subspinoso subspinoso | 5 | .06 |
| Total for Browse | | 87 | 23.75 |

CANOPY COVER, LINE INTERCEPT --

Management unit 30 , Study no: 63

| Species | Percent Cover |
|-----------------------------------|---------------|
| | '03 |
| Artemisia tridentata wyomingensis | 18.48 |
| Opuntia spp. | .61 |

KEY BROWSE ANNUAL LEADER GROWTH --

Management unit 30 , Study no: 63

| Species | Average leader growth (in) |
|-----------------------------------|----------------------------|
| | '03 |
| Artemisia tridentata wyomingensis | 1.7 |

BASIC COVER --

Management unit 30 , Study no: 63

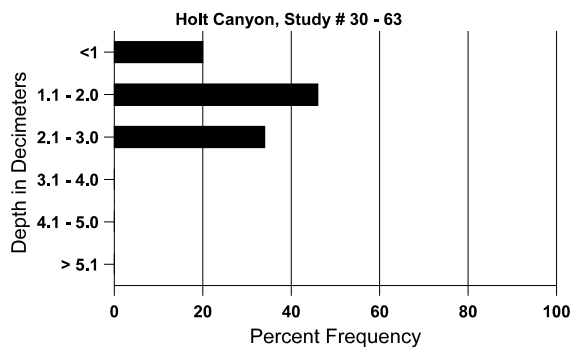
| Cover Type | Average Cover % |
|-------------|-----------------|
| | '03 |
| Vegetation | 31.81 |
| Rock | 4.84 |
| Pavement | 24.13 |
| Litter | 41.40 |
| Cryptogams | .18 |
| Bare Ground | 11.53 |

SOIL ANALYSIS DATA --

Management unit 30, Study no: 63, Study Name: Holt Canyon

| Effective rooting depth (in) | Temp °F (depth) | pH | %sand | %silt | %clay | %OM | PPM P | PPM K | ds/m |
|------------------------------|-----------------|-----|-------|-------|-------|-----|-------|-------|------|
| 11.0 | 70.4 (11.2) | 7.2 | 64.6 | 18.7 | 16.7 | 1.2 | 4.9 | 451.2 | 0.5 |

Stoniness Index



PELLET GROUP DATA --

Management unit 30 , Study no: 63

| Type | Quadrat Frequency | Days use per acre (ha) |
|--------|-------------------|------------------------|
| | '03 | '03 |
| Rabbit | 26 | - |
| Deer | 8 | 11 (26) |

BROWSE CHARACTERISTICS --

Management unit 30 , Study no: 63

| | | Age class distribution (plants per acre) | | | | | Utilization | | | | |
|------------------------------------|---------------------------------------|--|-------|--------|----------|------|-------------|---------|------------|--------------|---------------------------|
| Y | Plants per Acre (excluding seedlings) | Seedling | Young | Mature | Decadent | Dead | % moderate | % heavy | % decadent | % poor vigor | Average Height Crown (in) |
| Artemisia tridentata wyomingensis | | | | | | | | | | | |
| 03 | 3080 | - | 100 | 1320 | 1660 | 980 | 33 | 3 | 54 | 16 | 28/37 |
| Opuntia spp. | | | | | | | | | | | |
| 03 | 20 | - | - | 20 | - | - | 0 | 0 | - | 0 | -/- |
| Polygala subspinososa subspinososa | | | | | | | | | | | |
| 03 | 100 | - | - | 100 | - | - | 0 | 0 | - | 0 | 3/5 |
| Purshia tridentata | | | | | | | | | | | |
| 03 | 0 | - | - | - | - | - | 0 | 0 | - | 0 | 48/65 |